

## METEOROLOGY

Quick intro: Weather on the ground vs. Weather in the air (flying)...

On the ground, what do we care about when it comes to weather?

When we're flying, what do we care about?

VFR:	Visibility	IFR:	Visibility (only for T/O & Landing)
	Clouds (remain clear of them!)		Clouds (stormy or lenticular)
	Icing		Icing (at the surface or sustained)
	Wind		Wind (depends on plane)
	Runway surface		Runway surface
	Pressure		Pressure

## ATMOSPHERE

\*\*\* Diagrams \*\*\*

Atmospheric pressure: What is it (caused by weight of air above you)

High Pressure (above 29.92): Associated with "good weather"

Stable air

Cool, dense, dry air

Increased performance

\*\* Look out for fog, decreased visibility, icing \*\*

Low Pressure (below 29.92): Associated with "bad weather"

Unstable air

Warm updrafts

Decreased performance

Humidity

## WHAT CREATES WEATHER?

MOVING AIR

MOISTURE

## WHAT MAKES AIR MOVE?

Changes in Temp.

\*\* Diagram: Sun, Earth, 45% absorbed, 55% reflected \*\*

## WHAT AFFECTS AMOUNT OF TEMP. CHANGE?

Day/Night

Latitude

Water/Land

City/Rural (dirt, concrete, glass)

Season

Altitude

## WIND

A change in temperature leads to a change in pressure.  
A never-ending attempt to produce equilibrium = WIND!  
TRANSPORTS WATER VAPOR  
SPREADS FOG, CLOUDS, PRECIPITATION

### WARM AIR (heated surface):

Expands and rises  
Becomes lighter  
Becomes less dense

### COOL AIR:

Compresses and sinks  
Becomes heavier  
Becomes more dense

Think of oil and water: Warm air wants to rise to the top because it's less dense (like oil)  
Cool air wants to sink to the bottom because it's denser (like water)

### \*\* Moving air diagrams \*\*

Rising air is conducive to cloudiness & precipitation  
Descending air dissipates clouds

### STABLE vs. UNSTABLE air

Stratiform: Strata: sheet-like, horizontal  
Cumuliform: Cumulus: heap

## CLOUDS

Cirrus: usually indicates weather in a couple of days  
Cumulus: bumpy flight. Might get wet.  
Gray cumulus: Precipitation  
Stratus: May be visibility problems May stick around for a while. Smooth flight. ICING RISK!

## ICING

Rime  
Clear  
Mixed

## THUNDERSTORMS:

Cumulus  
Mature  
Dissipating

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